



# *Advanced Technology Program*

# **Funding Opportunities for High-Risk Research**

2000 ATP Regional Meeting  
Wyndham Baltimore Inner Harbor Hotel  
November 13-14, 2000

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## **Our Speakers**

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## ***ATP's Mission***

*To accelerate the development of  
**innovative technologies** for  
**broad national benefit** through  
**partnerships** with the private sector.*



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## ***Exciting New Technologies ...***



***Bridging the Gap Between the  
Laboratory and the Marketplace***



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## ***New Initiatives***

- “Rolling” submissions
- Streamlined proposal process
- Electronic submission of proposals (pilot)



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## ***ATP is part of NIST***

**NIST's Mission ... *Strengthen the U.S. economy and improve the quality of life by working with industry to develop and apply technology, measurements, and standards.***



- 3,300 employees
- \$800 million annual budget
- 1,200 industrial partners
- 2,000 field agents
- 1,550 guest researchers
- \$1.5 billion co-funding of industry R&D
- National measurement standards

***Helping America Measure Up***



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## A Decade of Innovation

- Since 1990, 4,435 proposals submitted to 41 competitions, requesting \$9.6B from ATP
- 522 projects awarded with 1,162 participants and an equal number of subcontractors
- 172 joint ventures and 350 single companies
- \$3.3 billion of high-risk research funded
  - **ATP share = \$1.640 billion**
  - **Industry share = \$1.629 billion**
- Small businesses are thriving
  - **59% of projects led by small businesses**
- Over 100 universities participate
- Nearly 20 national laboratories participate

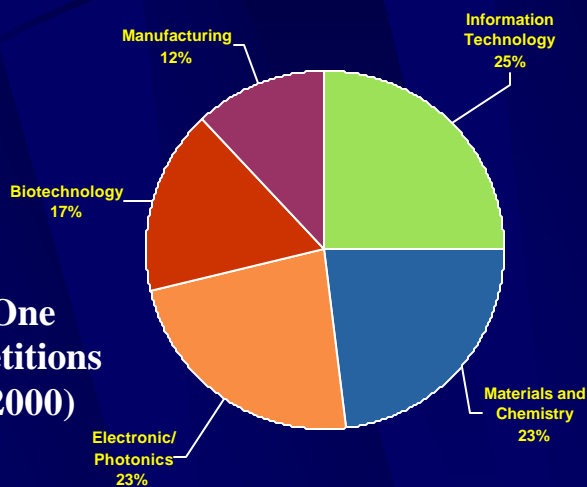


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## 522 ATP Awards by Technology Area (As a Percent of \$1.64B Awarded)

Forty-One  
Competitions  
(1990-2000)



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## ***What Can ATP Do for You?***

- Create Sustainable Technical Advantage
  - **we share in the risk of longer-range, higher-payoff research**
  - **you direct the research goals**
  - **ATP commits approx. \$1,000,000 per year per project**
- You Own the Intellectual Property Rights
  - **U.S. for-profit companies keep rights to intellectual property from ATP-funded projects**
- Encourage Integration of Business and Technical Planning
  - **plan now for commercializing your research results**
  - **visit our website for info on how to write a business plan**
  - **attend ATP-sponsored workshops with venture capitalists**



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## ***What Can ATP Do for You?*** ***(cont'd)***

- Gain Recognition Within Industrial and Financial Sectors
  - **an ATP award will attract attention from investors, strategic partners, potential customers, and others**
- Find Partners Thru Our Website
  - **visit ATP's Collaboration Bulletin Board**
  - **join ATP's Alliance Network List Server**
- We Are Flexible and Fair, but Firm
  - **we will monitor your progress, but also be supportive if roadblocks appear as long as you commit to high-risk research**



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# Is ATP Right For You?

- Are you looking to further your technical advantage by conducting challenging research?
- Is the risk primarily in your technical approach?
- Does your project have the potential to generate broad-based economic benefits for the United States?
- Are you committed to taking the research into the marketplace?

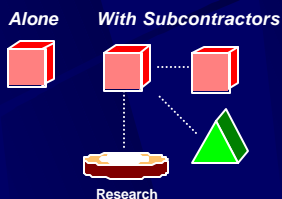


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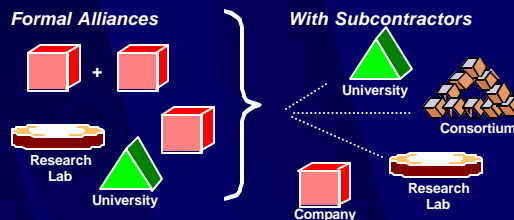
# Two Ways to Apply ...

## As a Single Company:



- For-profit company
- 3-year time limit
- \$2M award cap
- Company pays indirect costs
- Large companies cost share at least 60% of total project cost

## As a Joint Venture:



- At least 2 for-profit companies
- 5-year time limit
- No limit on award amount (other than availability of funds)
- Industry share >50% total cost

- **ATP encourages teaming arrangements**
- **Most projects involve alliances**



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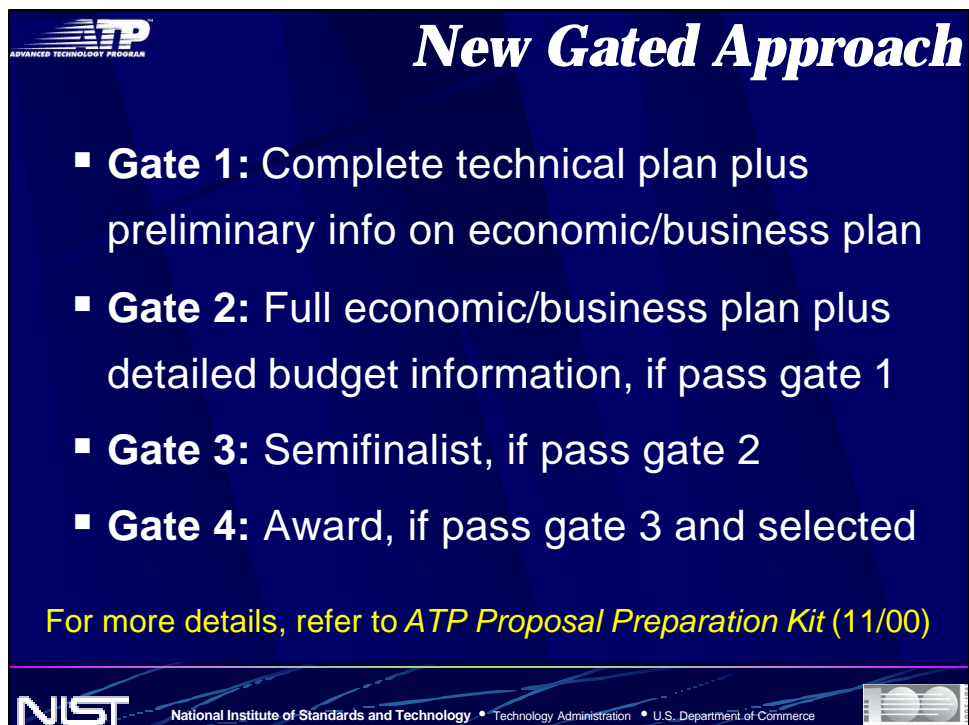
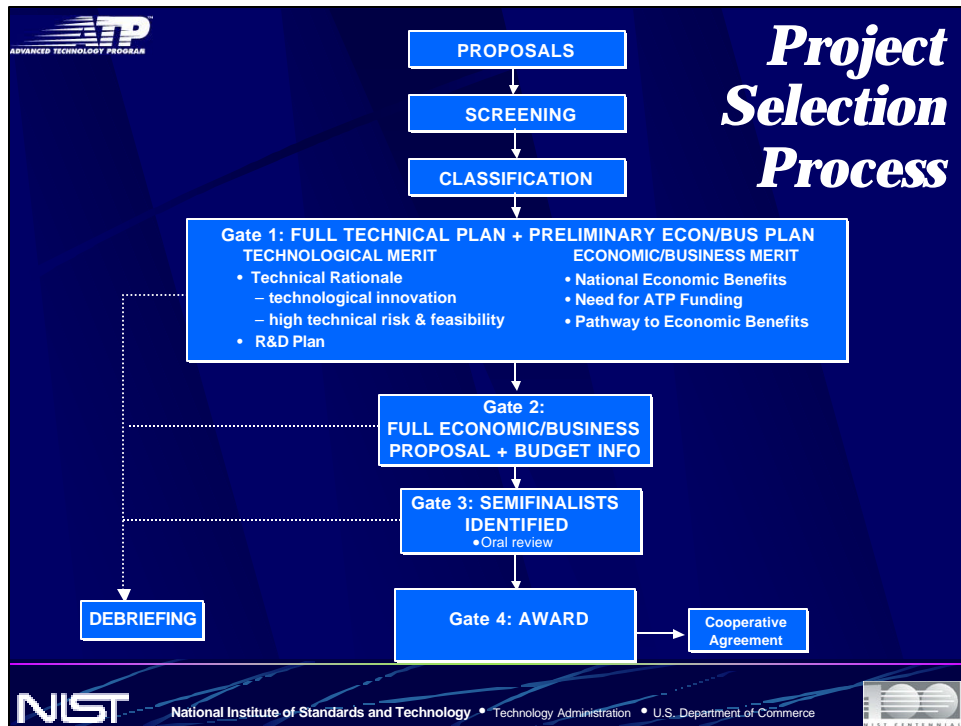
## *Two Major Criteria*

- Scientific and Technological Merit (50%)
  - **Technical Rationale**
    - technological innovation
    - high technical risk & feasibility
  - **R&D Plan**
- Potential for Broad-Based Economic Benefits (50%)
  - **National Economic Benefits**
  - **Need for ATP Funding**
  - **Pathway to Economic Benefits**

## *FY 2001 Changes*

- Accept and review proposals year-round
- Make awards year-round
- Reduce paperwork via gated approach to proposal submission

**No change in project selection criteria and technology specific review**







## ***Gate 1: Complete Technical Plan***

- Fully address “scientific and technological merit” selection criterion
  - **Technical Rationale**
    - **technological innovation**
    - **high technical risk & feasibility**
  - **R&D Plan**
- Single company -- **20 pages max**
- Joint venture -- **30 pages max**



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## ***Gate 1 (cont'd): Preliminary Info on Economic/Business Plan***

- Briefly address “potential for broad-based economic benefits” selection criterion
  - **National Economic Benefits**
  - **Need for ATP Funding**
  - **Pathway to Economic Benefits**
- Single company -- **4 pages max**
- Joint venture -- **5 pages max**



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## ***Gate 2: Complete Economic/Business Plan***

- Fully address “potential for broad-based economic benefits” selection criterion
  - **National Economic Benefits**
  - **Need for ATP Funding**
  - **Pathway to Economic Benefits**
- Single company -- **15 pages max**
- Joint venture -- **20 pages max**



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## ***Gate 2 (cont'd): Budget Info***

- Submit detailed budget data for the project
- Worksheets included in  
*ATP Proposal Preparation Kit (11/00)*
- Budget info **not** included in page limit



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## ***Gate 3: Semifinalist***

- If selected as a semifinalist, you may be invited to NIST for oral review, or may be asked to provide responses to questions for clarification
- Oral review at ATP's discretion
- Site visit at ATP's discretion



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## ***Gate 4: Award***

- An award is made, if selected
- Cooperative agreement issued by NIST Grants Officer

**Congratulations!**



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## ***Think About Proposal as a Whole***

- Identify the economic opportunity
- Name what technical barriers stand in the way of realizing that opportunity
- Relate specific R&D objectives to these barriers
- Show a detailed R&D plan for eliminating barrier
- Envision a commercialization strategy and plan for taking the proposed technology, once developed, to market
- Include the right team members to get the job done



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## ***Two Major Criteria***

- Scientific and Technological Merit (**50%**)
  - **Technical Rationale**
    - technological innovation
    - high technical risk & feasibility
  - **R&D Plan**
- Potential for Broad-Based Economic Benefits (**50%**)
  - **National Economic Benefits**
  - **Need for ATP Funding**
  - **Pathway to Economic Benefits**

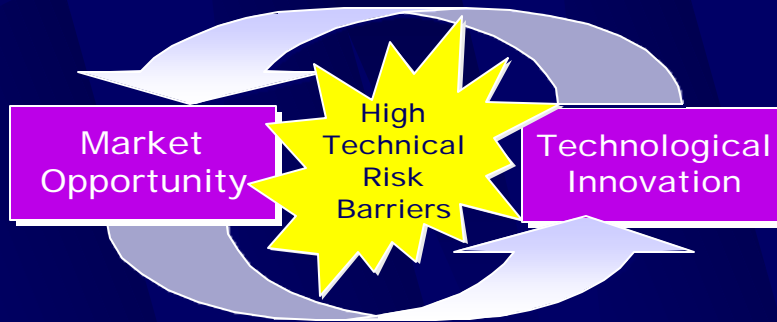


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## ***Business Drivers and Technical Planning***

What is Needed for Technical Success?



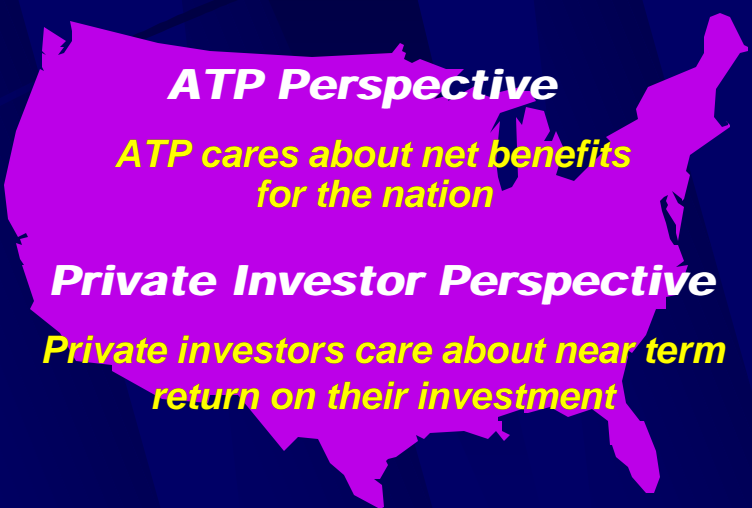
What is Needed for Market Success?

## ***Economic/Business Criterion***

- Potential for Broad-Based Economic Benefits
  - **National Economic Benefits**
  - **Need for ATP Funding**
  - **Pathway to Economic Benefits**

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# ***National Economic Benefits***



***ATP Perspective***  
*ATP cares about net benefits  
for the nation*

***Private Investor Perspective***  
*Private investors care about near term  
return on their investment*

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# ***National Economic Benefits***

- Describe the business opportunity. Why is it of economic importance to you and the nation?
- How will you benefit? How will others benefit (your customers, competitors, your industry, other industries, and the general public)?
- What is the business advantage of your technological approach over others? Quantify the magnitude of improvement

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## ***National Economic Benefits (cont'd)***

- Who are the potential users of the technology? How big are the markets and what are the growth trends? How will these markets change once the proposed technology is available?
- Be specific and give supporting evidence (quantitative and qualitative)



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## ***Need for ATP Funding***

***Describe the difference ATP can make***

- Broader scale or scope of R&D?
- Acceleration of R&D?
- Greater collaboration?

**... leading to greater national benefits faster?**

**What market opportunity will be missed  
without ATP funding?**



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## ***Need for ATP Funding (cont'd)***

### **Why does your project need public funds?**

I need  
money for  
R&D



- Is the project “too risky” to obtain private or internal funding?
- Do you think your company won’t capture the major benefit?
- Where else have you looked for funding and why were you turned down?

Government?

Venture Capital?

Corporate Investment?

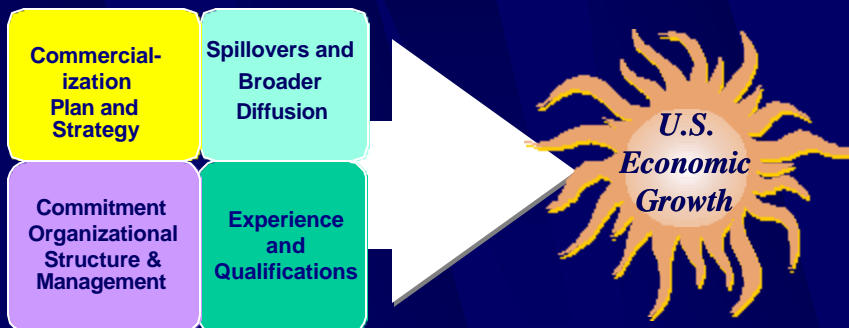
Personal Sources?

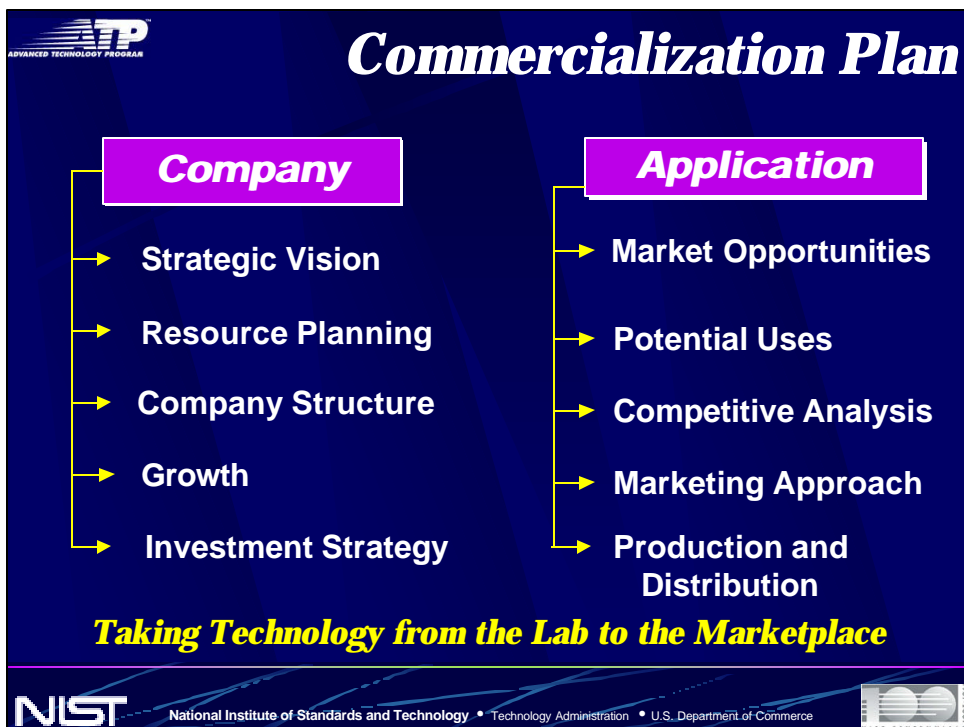
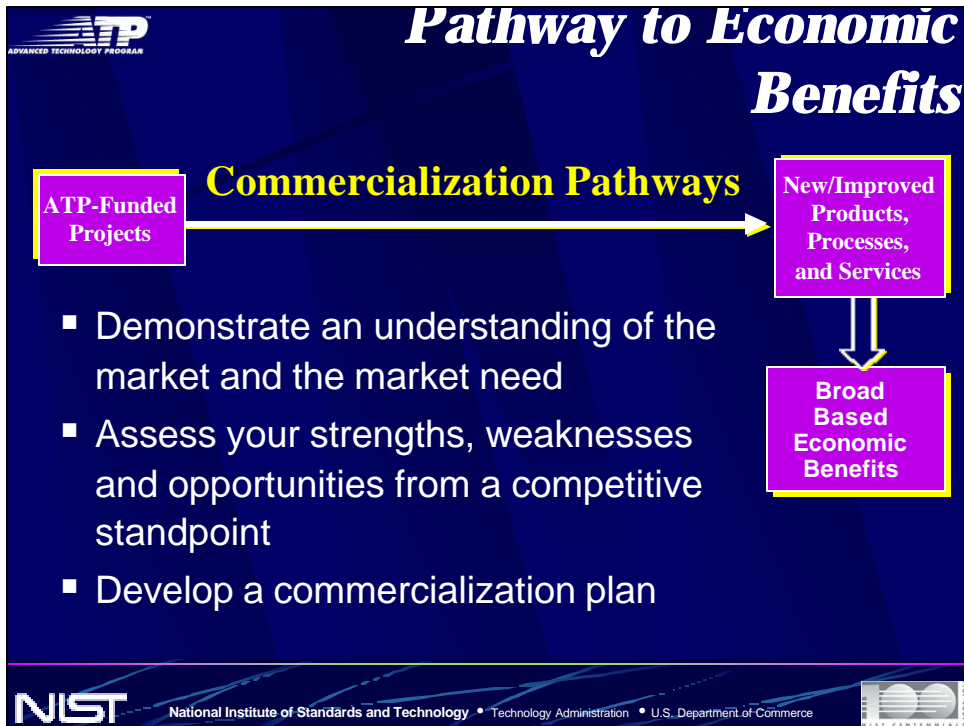
Institutional Loans?

Angel Investors?

## ***Pathway to Economic Benefits***

**What is your strategy, plan, and  
project structure for realizing  
national economic benefits?**





## ***Commercialization Plan - Tips***

- Begin planning for commercialization at the outset and involve your business staff
- Understand that a fantastic technology may capture the imagination but not necessarily the market
- Need a reasonably well developed commercialization plan for the technology

## ***Broader Diffusion***

- How will benefits of your technology reach others?
- How will new knowledge diffuse to others in the same or other industry sectors?
  - **publish results? patent? seek licensing partners? include user groups? form alliances?**
- What will you do to increase likelihood of diffusion beyond project participants?

## ***Commitment***

- Company resources
  - human; financial; equipment; research facilities
- Priority of project to the company
  - involve highest appropriate level of management
  - strong company role; not just pass-through to subcontractors
  - every JV partner has a clear role
- Evidence of customer/supplier/investor interest and support
  - letters showing real interest and involvement
  - formal and informal alliances
  - other forms of active involvement

## ***Organizational Structure, Project Management, and Business Experience***

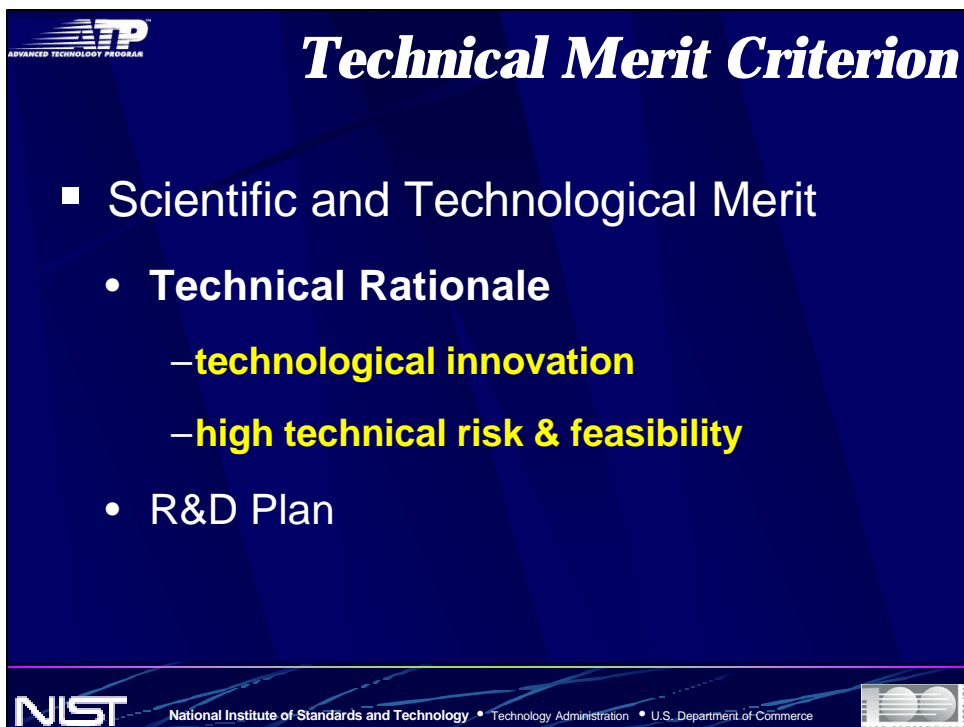
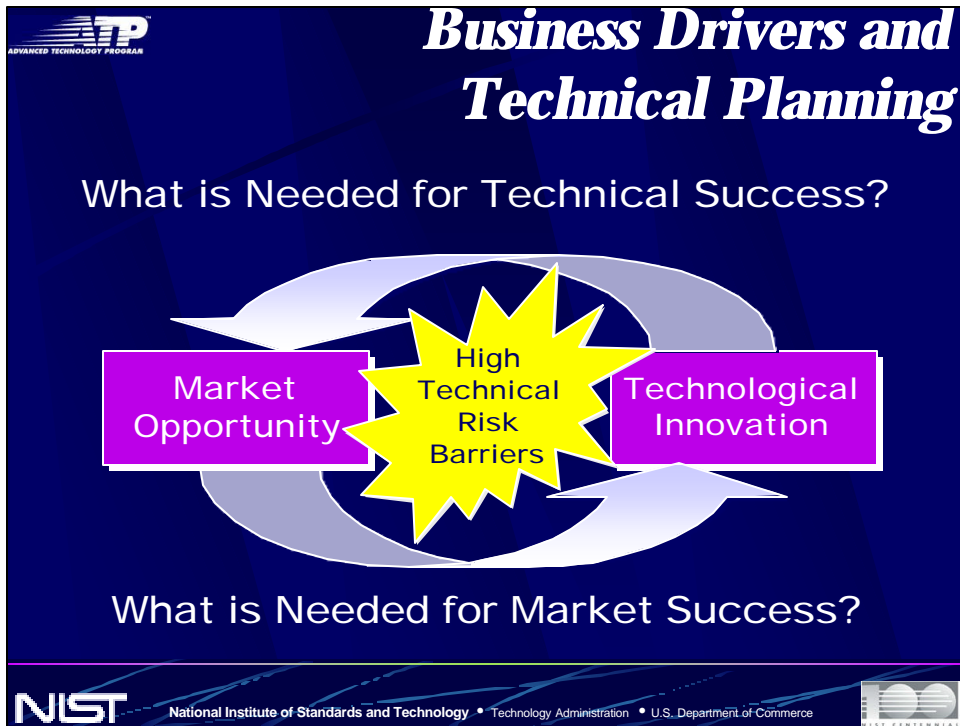
- Roles/responsibilities of participants
  - Show qualified business personnel involved
- Plan for managing project's tasks
- Business experience/track record of each company and its principals
- Evidence of financial viability

## ***Common Proposal Weaknesses: Business***

- Lacks connection between technical goals and business opportunity
- Insufficient evidence of economic benefits
- Poorly developed or no commercialization plan
- Insufficient plan for broader diffusion
- Insufficient plan for including critical business partners

## ***Summary: Economic/Business Criterion***

- Preliminary info briefly addressing “potential for broad-based economic benefits” selection criterion (Gate 1)
  - single company (4 pages max)
  - joint venture (5 pages max)
- Fully address “potential for broad-based economic benefits” selection criterion (Gate 2, if your technical plan passes Gate 1)
  - single company (15 pages max)
  - joint venture (20 pages max)



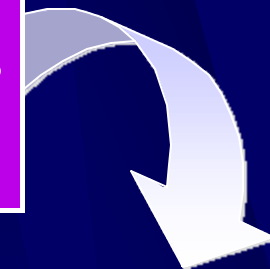
## ***Rationale for Technical Merit***

- Describe the innovation
  - **R&D goals? approach?**
  - **quantify objectives**
  - **compare to state of the art**
  - **unique with respect to current practice?**
- What is the high technical risk? What are the technical barriers?
- Provide evidence of feasibility of approach
- Show technical impact

## ***How Could Success Create a Sustainable Technical Advantage***

*Does your idea...*

- Extend the state of the art?
- Change the state of practice?
- Integrate multi-disciplinary technologies?



***Path Changing  
R&D***



# Technological Innovation

## Your New Technology

*What are the project's goals?  
What are the quantified targets?  
What innovations are needed?*

**Your  
Innovation**

## Baseline: State of the Art

*Within the team?  
Within the industry at large?*

# High Technical Risk & Feasibility

## High Technical Risk

- technical challenges
- significant uncertainty of success
- risky innovation or integration

## Feasibility

- sound scientific foundation
- sound engineering approach

**Your ATP proposal should balance both**



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# *Common Proposal Weaknesses: Technical*

- Lacks sufficient detail
  - How will you reach technical objectives?
  - What's innovative?
  - Why is a risky technical approach needed?
- Unsupported assertions
- Outside ATP mission
  - Low risk (e.g., product development)
  - Lacks demonstrated feasibility (e.g., basic research)
  - Scale-up or demo to only prove economically feasible
- Lacks connection between technical goals and business opportunity

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## ***Summary: New Gated Approach***

- **Gate 1:** Complete technical plan plus preliminary info on economic/business criterion
  - **If pass, go to Gate 2; otherwise debriefing**
- **Gate 2:** Full economic/business plan plus detailed budget information
  - **If pass, go to Gate 3; otherwise debriefing**
- **Gate 3:** Semifinalist (oral review)
  - **If pass, go to Gate 4; otherwise debriefing**
- **Gate 4:** Award, if pass gate 3 and selected



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## ***Administrative Highlights***

- Intellectual property provisions
- Foreign-owned company participation
- Human and animal subjects
- Budget preparation
- Payments



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## ***Intellectual Property Provisions***

- U.S. for-profits retain title to inventions
- Companies may license inventions
- Universities/non-profits may receive royalties; cannot own title; cannot be granted exclusive license to inventions
- Government reserves right to paid-up, royalty-free, non-exclusive license for governmental use; not exercised to date



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## ***Foreign-Owned Company Participation***

- U.S.-incorporated subsidiary eligible to participate
- As with all projects, each company's participation must be:
  - **in the economic interest of United States**
- Parent's country of incorporation must afford U.S. companies:
  - **opportunities to participate in government-funded programs similar to ATP;**
  - **local investment opportunities; and**
  - **adequate and effective protection for intellectual property rights**
- Refer to "ATP Eligibility Criteria for U.S. Subsidiaries of Foreign-Owned Companies: Legislation, Implementation, and Results"



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## ***Human and Animal Subjects***

- ATP funds projects involving human and/or animal subjects
- Must comply with applicable Federal rules
- Not limited to traditional biomedical research
- Refer to “Guidelines and Documentation Requirements for Research Involving Human and Animal Subjects”
- Contact Mr. Tryn Stimart (301-975-8779; [tryn.stimart@nist.gov](mailto:tryn.stimart@nist.gov))



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## ***Budget Preparation***

- Gate 1: Submit page 3 of NIST-1262 (S) or NIST-1263 (JV) with initial proposal
- Gate 2: Submit detailed budget narrative (*Exhibit 14* in new *Kit*), if proposal passes Gate 1
- Identify:
  - **yearly project costs**
  - **direct costs**
  - **indirect costs**
  - **sources of funds/cost share**



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## ***Direct Costs***

- Any costs that can be identified specifically with a particular cost objective:
  - **personnel**
  - **fringe benefits**  
(vacation, sick, insurance, retirement, etc.)
  - **travel**
  - **equipment**
  - **materials/supplies**
  - **subcontracts**
  - **other**

## ***Indirect/Overhead Costs***

- Any costs not directly identified with a single cost objective but identified with two or more final cost objectives:
  - depreciation on buildings and equipment
  - facility operations and maintenance
  - general administration
    - **salaries/expenses of executive officers**
    - **personnel administration**
    - **accounting and auditing**

## *Sources of Funds/ Cost Share*

- Identify every source of cost share
  - **company**
  - **state/city/county**
  - **other non-Federal**
- Unallowable sources of cost share
  - **Federal funds**
  - **sunk costs**
  - **subcontractors**

## *Sources of Funds/ Cost Share (cont'd)*

- Identify cash and in-kind
- In-kind
  - **equipment, research tools, software, supplies, etc.**
  - **limited to 30% of total cost share**
  - **value per 15 CFR Part 14.23**
  - **value in-kind transfers among JV partners per 15 CFR Part 295.25**




## *Payments*

- Submit SF-270
- Advance monthly payment
- Electronic payment method
- Adherence to award provisions
  - **satisfactory performance**
  - **timely submission of required reports**
  - **meeting cost share**

## *Helpful Resources\**

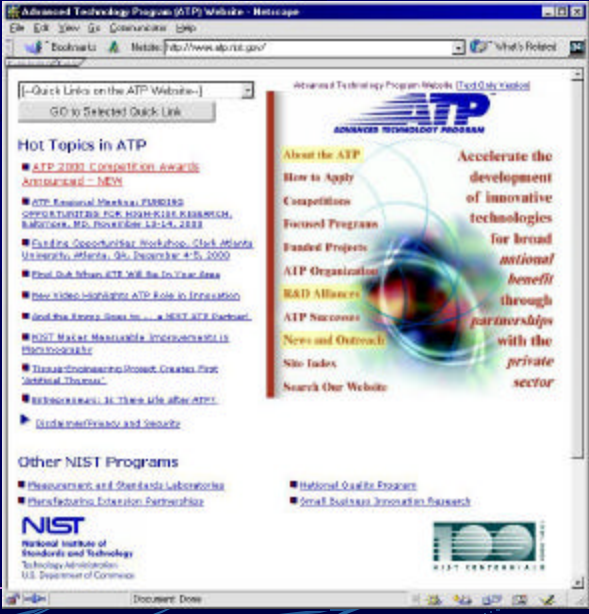
- Administrative Requirements
  - **15 CFR Part 14**
- Cost Principles
  - **48 CFR Part 31 (For-profits)**
  - **OMB Circular A-21 (Universities)**
  - **OMB Circular A-122 (Non-profits)**
  - **45 CFR Part 74, Appendix E (Hospitals)**

\* Hot links on ATP website:  
**[www.atp.nist.gov/alliance/roadmap.htm](http://www.atp.nist.gov/alliance/roadmap.htm)**




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# ATP Website Resources



The screenshot shows the ATP website interface with various sections: 'Hot Topics in ATP' listing recent events and competitions, 'About the ATP' section with links to 'How to Apply', 'Competitions', 'Focused Programs', 'Funded Projects', 'ATP Organization', 'R&D Alliances', 'ATP Successes', 'News and Outreach', 'Site Index', and 'Search Our Website'. It also features a 'NIST' logo and 'Other NIST Programs' including 'Measurement and Standards Laboratories' and 'Physics Division, External Partnerships'.



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# FY2001 Competition

- Check **Federal Register** and **Commerce Business Daily** announcement for availability of:
  - **FY2001 funds**
  - **new Proposal Preparation Kit (11/00)**
- ATP automatically sends out *Kit* and announcements to mailing list



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## ***For Info on ATP and to Join Our Mailing List . . .***

- Call toll-free: 1-800-ATP-Fund  
(800-287-3863)
- Fax your name and  
address to: 301-926-9524
- Send e-mail to: ***atp@nist.gov***
- Visit ATP's website: ***www.atp.nist.gov***



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